

LIANG - Appln. No. 10/087,450

REMARKS

Reconsideration and allowance of the present application based on the following remarks is respectfully requested.

Claims 7, 9, 21, and 24 were amended to use preferred grammatical language without narrowing the scope of the claimed subject matter. Claims 39-43 were amended to remove an unnecessary phrase without narrowing the scope of the claimed subject matter.

Claims 12 and 31 were amended to add an element to each claim. The recitations of the remaining elements of these claims were amended to use preferred grammatical language, and to conform to the description of the added element, without narrowing the scope of the subject matter described by these remaining elements. Likewise, claims 14, 17-20, 33-35, and 37 were amended to use preferred grammatical language, and/or to conform to the description of the element added to a claim from which they depend, without narrowing the scope of the subject matter described by these dependent claims. Claims 15 and 36 were amended to use preferred grammatical language and were otherwise broadened in scope.

Claims 44-47 have been added. Claims 1-47 are pending in this application.

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached Appendix is captioned "Version with markings to show changes made".

Jan-10-03 12:49 From-PILLSBURY WINTHROP

703-905-2500

T-834 P.013/033 F-108

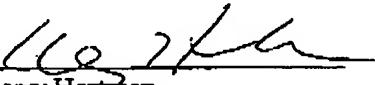
LIANG - Appn. No. 10/087,450

All objections and rejections having been addressed, it is respectfully submitted that the present application is in a condition for allowance and a Notice to that effect is earnestly solicited.

Respectfully submitted,

Pillsbury Winthrop LLP

By:


Kerry Hartman

Reg. No.: 41,818

Tel. No.: (703) 905-2085

Fax No.: (703) 905-2500

KH:emg

1600 Tysons Boulevard

McLean, VA 22102

(703) 905-2000

Enclosure: Appendix

LIANG - Appl. No. 10/087,450

APPENDIX
VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

7. The method of claim 6 wherein the adjusting comprises selecting a frequency of [for] the reading to correct the buffer overflow condition.

9. The method of claim 8 wherein the adjusting comprises selecting a frequency of [for] the reading to correct the buffer underflow condition.

12. A frame rate control system comprising:

a buffer,

a write control component configured to write data frames to the buffer [at an image source signal frequency; and] according to a write pointer;

a read control component [selectively operative] configured to read the data frames from the buffer at [a selected one of a plurality of display frequencies] a reading frequency and according to a read pointer; and

a frequency controller configured to determine a relation between a value of the write pointer and a value of the read pointer and to indicate the reading frequency based on the determined relation.

14. The system of claim 12 wherein the [selected one of the plurality of display frequencies] reading frequency is equal to the source signal frequency.

15. The system of claim 12 [further comprising], wherein the frequency controller includes:

A1

30327398_1

LIANG - Appln. No. 10/087,450

a detector [operative to receive information related to a write pointer from the write control component and to receive information related to a read pointer from the read control component; wherein the detector is further operative] configured to detect a buffer overflow condition or a buffer underflow condition based upon [a comparison of the information related to a write pointer and the information related to a read pointer] the determined relation.

17. The system of claim 16 wherein the [selected one of the plurality of display frequencies is selected] frequency controller is configured to indicate the reading frequency in accordance with one of the first signal [or] and the second signal.

18. The system of claim 12[further comprising a], wherein the frequency controller [configuring] includes a frequency control element configured to control the read control component to [operate at the selected one of the plurality of display frequencies] read the data frames at the reading frequency.

19. The system of claim 18 wherein the frequency [controller] control element comprises a phase locked loop.

20. The system of claim 18 wherein the frequency [controller] control element is [responsive] configured to respond to both a buffer overflow condition and a buffer underflow condition.

21. A method of controlling a frame rate of a display signal for a destination video display device; the method comprising:

receiving an image source signal comprising source data;

writing the source data to a buffer at a source frequency and updating a write pointer;

LIANG — Appln. No. 10/087,450

reading the source data from the buffer at a display frequency and updating a read pointer;

- comparing information related to the write pointer and information related to the read pointer;

responsive to the comparing, detecting one of a buffer overflow condition [or] and a buffer underflow condition;

modifying the source data in accordance with capabilities of the destination video display device; and

responsive to the detecting, adjusting the display frequency in accordance with the [buffer overflow condition or the buffer underflow] detected condition.

24. The method of claim 23 wherein the adjusting comprises identifying one of the plurality of display frequencies to correct the [buffer overflow condition or the buffer underflow] detected condition.

31. A frame rate control system [providing] configured to provide display signals to a video display device; the system comprising:

a source signal interface [receiving] configured to receive an image source signal;

a buffer;

a write control component [operative to receive the image source signal and] configured to write data frames [from] of the image source signal to the buffer [at an image source signal frequency] according to a write pointer; and

a read control component [selectively operative] configured to read the data frames from the buffer at [a selected one of a plurality of display frequencies] a reading frequency and according to a read pointer; and

LIANG - Appln. No. 10/087,450

a frequency controller configured to determine a relation between a value of the write pointer and a value of the read pointer and to indicate the reading frequency based on the determined relation.

33. The system of claim 31 wherein the [selected one of a plurality of display frequencies] reading frequency is equal to [the source signal] a frequency of the image source signal.

34. The system of claim 31 [further comprising a], wherein the frequency controller [configuring] includes a frequency control element configured to control the read control component to [operate at the selected one of a plurality of read frequencies] read the data frames at the reading frequency.

35. The system of claim 34 wherein the frequency [controller] control element comprises a phase locked loop.

36. The system of claim [34 further comprising] 31, wherein the frequency controller includes:

a detector [operative to receive information related to a write pointer from the write control component and to receive information related to a read pointer from the read control component; wherein the detector is further operative] configured to detect a buffer overflow condition or a buffer underflow condition based upon [a comparison of the information related to a write pointer and the information related to a read pointer] the determined relation.

37. The system of claim 36, wherein the frequency controller includes a frequency control element configured to control the read control component to read the data frames at the reading frequency, and

LIANG - Appln. No. 10/087,450

wherein the frequency [controller] control element is responsive to signals received from the detector representative of the buffer overflow condition or the buffer underflow condition.

39. The computer readable medium of claim 38 further encoded with data and computer executable instructions [and further] causing an apparatus executing the instructions to:

receive an analog image source signal from a source;

convert the analog image source signal to a digital source signal; and

generate the video frame source data from the digital source signal.

40. The computer readable medium of claim 38 further encoded with data and computer executable instructions [and further] causing an apparatus executing the instructions to:

configure a read control component to operate at a selected one of a plurality of display frequencies supported by the display device.

41. The computer readable medium of claim 38 further encoded with data and computer executable instructions [and further] causing an apparatus executing the instructions to:

apply a scaling algorithm operative to modify the source data in accordance with capabilities of the display device.

42. The computer readable medium of claim 38 further encoded with data and computer executable instructions [and further] causing an apparatus executing the instructions to:

AS

Jan-10-03

12:51

From-PILLSBURG THROP

703-905-2500

T-834 P.019/033 F-108

LIANG - Appln. No. 10/087,450

increase the display frequency responsive to a buffer overflow condition; and

decrease the display frequency responsive to a buffer underflow condition.

43. The computer readable medium of claim 41 further encoded with data and computer executable instructions [and further] causing an apparatus executing the instructions to:

increase the display frequency when the scaling algorithm adds data to the source data; and

decrease the display frequency when the scaling algorithm deletes data from the source data.